

## CLAIMS

What is claimed is:

- 438/
- 1 1. A method for forming a semiconductor structure comprising:
- 2 supplying a structure having an exposed last metalization layer;
- 3 cleaning said last metalization layer;
- 4 forming a silicide in a top portion of said last metalization layer; and
- 5 forming a terminal over said silicide.
- 6 2. The method in claim 1, wherein said last metalization layer comprises
- 7 copper.
- 8 3. The method in claim 1, wherein said cleaning comprises applying one of
- 9 an ammonia plasma and a hydrogen plasma to said last metalization layer.
- 1 4. The method in claim 1, wherein said forming of said silicide comprises
- 2 forming said silicide in a top 10% to 20% of a thickness of said last metalization
- 3 layer.
- 1 5. The method in claim 1, wherein said forming of said terminal comprises
- 2 forming one of a lead and tin solder terminal electrically connected to said
- contact!

3 silicide.

1 6. The method in claim 1, wherein said forming of said terminal comprises  
2 forming a silicon nitride layer physically connected to said silicide, said silicon  
3 nitride layer including an opening allowing direct electrical contact with said  
4 silicide.

1 7. The method in claim 6, wherein said structure includes insulating layers  
2 above said silicon nitride layer.

09665325-092100  
1 8. A method for forming a contact comprising:  
2 supplying a structure having an exposed metalization layer;  
3 cleaning said metalization layer;  
4 forming a silicide in a top portion of said metalization layer; and  
5 forming a connection to said silicide.

1 9. The method in claim 8, wherein said metalization layer comprises copper.

1 10. The method in claim 8, wherein said cleaning comprises applying one of  
2 an ammonia plasma and a hydrogen plasma to said metalization layer.

1 11. The method in claim 8, wherein said forming of said silicide comprises

2 forming said silicide in a top 20% of a thickness of said metalization layer.

1 12. The method in claim 8, wherein said forming of said terminal comprises  
2 forming one of a lead and tin solder terminal electrically connected to said  
3 silicide.

1 13. The method in claim 8, wherein said forming of said terminal comprises  
2 forming a silicon nitride layer physically connected to said silicide, said silicon  
3 nitride layer including an opening allowing direct electrical contact with said  
4 silicide.

1 14. The method in claim 13, wherein said structure includes insulating layers  
2 above said silicon nitride layer.

Sub C  
15. A semiconductor device having at least two levels of interconnecting  
2 metallurgy, said semiconductor device comprising:  
3 a first level of substantially silicide free metallurgy; and  
4 an uppermost layer of metallurgy including a bonding pad, wherein a top  
5 of said uppermost layer comprises a silicided surface.

1 16. The semiconductor device in claim 15, wherein said interconnecting  
2 metallurgy comprises copper.

0011260-092100

1 17. The semiconductor device in claim 15, wherein, prior to formation of said  
2 silicided surface, said uppermost layer is cleaned by applying one of an ammonia  
3 plasma and a hydrogen plasma.

1 18. The semiconductor device in claim 15, wherein said silicided surface  
2 comprises a top 10% to 20% of a thickness of said uppermost layer.

1 19. The semiconductor device in claim 15, further comprising one of a lead  
2 and tin solder terminal electrically connected to said silicided surface.

1 20. The semiconductor device in claim 19, further comprising a silicon nitride  
2 layer physically connected to said silicide and including an opening allowing  
3 direct electrical contact with said silicided surface.

add B1